

#### ABSTRACT OF THE DISCLOSURE

There are disclosed a semiconductor wafer which has undulation components on wafer back surface and/or wafer front surface of  $10 \mu\text{m}^3$  or less represented in terms of power spectrum density at least for the components at a wavelength of 10 mm; method for producing a semiconductor wafer by polishing front surface of the semiconductor wafer which is held at its back surface, which utilizes a semiconductor wafer to be polished having undulation components on wafer back surface of  $10 \mu\text{m}^3$  or less represented in terms of power spectrum density at least for the components at a wavelength of 10 mm; and wafer chuck provided with a holding surface for holding a wafer by chucking, wherein the holding surface has undulation components of  $10 \mu\text{m}^3$  or less represented in terms of power spectrum density at least for the components at a wavelength of 10 mm. According to the present invention, undulation components of semiconductor wafers can be quantitatively evaluated, and thereby there can be provided a semiconductor wafer free from surface undulation components, a method for producing such a semiconductor wafer, and a wafer chuck therefor. Such undulation components may cause problems upon lithography, device separation and the like in the device-processing steps.